Amendments to the Claims

Please cancel claims 2, 59-71, and 83-84 without prejudice. Please amend claims 1, 20, 43, 85, and 87. This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1. (Currently amended) A fusion protein comprising a Receptor for Advanced Glycation End Product Ligand Binding Element (RAGE-LBE) and an immunoglobulin element, wherein the RAGE-LBE comprises ~~an amino acid sequence~~ at least 118 amino acids and is at least ~~70%~~ 95% identical to ~~an extracellular portion~~ amino acid residues 1 through 118 of SEQ ID NO: 7.

2. (Canceled)

3. (Previously presented) The fusion protein of claim 1, wherein said RAGE-LBE comprises amino acid residues 1 through 344 of the amino acid sequence set forth in SEQ ID NO: 7.

4. (Previously presented) The fusion protein of claim 1, wherein said RAGE-LBE comprises amino acid residues 1 through 330 of the amino acid sequence set forth in SEQ ID NO: 7.

5. (Previously presented) The fusion protein of claim 1, wherein said RAGE-LBE comprises amino acid residues 1 through 321 of the amino acid sequence set forth in SEQ ID NO: 7.

6. (Previously presented) The fusion protein of claim 1, wherein said RAGE-LBE comprises amino acid residues 1 through 230 of the amino acid sequence set forth in SEQ ID NO: 7.

7. (Previously presented) The fusion protein of claim 1, wherein said RAGE-LBE comprises amino acid residues 1 through 118 of the amino acid sequence set forth in SEQ ID NO: 7.

8. (Original) The fusion protein of claim 1, wherein said RAGE-LBE comprises Ig1, Ig2, and Ig3 domains.

9. (Original) The fusion protein of claim 1, wherein said RAGE-LBE comprises Ig1 and Ig2 domains.

10. (Original) The fusion protein of claim 1, wherein said RAGE-LBE comprises the Ig1 domain.

11. (Original) The fusion protein of claim 1, wherein said RAGE-LBE comprises one or more point mutations wherein said point mutations increase the binding affinity of said RAGE-LBE for a Receptor for Advanced Glycation End Product Binding Partner (RAGE-BP).

12. (Original) The fusion protein of claim l, wherein said immunoglobulin element comprises an immunoglobulin heavy chain.

13. (Original) The fusion protein of claim 1, wherein said immunoglobulin element comprises an Fc domain.

14. (Currently amended) The fusion protein of claim 12, wherein said immunoglobulin heavy chain is selected from ~~the group consisting of an~~ IgM, IgD, IgE, and IgA heavy chains.

15. (Currently amended) The fusion protein of claim 12, wherein said immunoglobulin heavy chain is selected from ~~the group consisting of an~~ IgG1, IgG2β, IgG2α, and IgG3 heavy chains.

16. (Original) The fusion protein of claim 1, wherein said immunoglobulin element comprises the CH1 and Fc domains.

17. (Original) The fusion protein of claim 1, wherein said immunoglobulin element comprises a CH1 domain of a first immunoglobulin class and a CH1 domain of a second immunoglobulin class, wherein the first and second immunoglobulin classes are not the same.

18. (Original) The fusion protein of claim 1, further comprising a dimerizing polypeptide.

19. (Previously presented) A composition comprising the fusion protein of claim 1 and a pharmaceutically acceptable carrier.

20. (Currently amended) A fusion protein comprising a RAGE-LBE and a second domain selected from ~~the group consisting of~~ a dimerizing polypeptide, a purification polypeptide, a stabilizing polypeptide, and a targeting polypeptide, wherein the RAGE-LBE comprises ~~an amino acid sequence~~ at least 118 amino acids and is at least ~~70%~~ 95% identical to ~~an extracellular portion~~ amino acid residues 1 through 118 of SEQ ID NO: 7.

21. (Original) The fusion protein of claim 20, wherein said dimerizing polypeptide comprises an amphiphilic polypeptide.

22. (Original) The fusion protein of claim 21, wherein said amphiphilic polypeptide comprises up to 50 amino acids.

23. (Original) The fusion protein of claim 22, wherein said amphiphilic polypeptide comprises up to 30 amino acids.

24. (Original) The fusion protein of claim 22 wherein said amphiphilic polypeptide comprises up to 20 amino acids.

25. (Original) The fusion protein of claim 22, wherein said amphiphilic polypeptide comprises up to 10 amino acids.

26. (Original) The fusion protein of claim 20, wherein said dimerizing polypeptide comprises a peptide helix bundle.

27. (Original) The fusion protein of claim 20, wherein said dimerizing polypeptide comprises a leucine zipper.

28. (Original) The fusion protein of claim 27, wherein said leucine zipper is a jun zipper.

29. (Original) The fusion protein of claim 27, wherein said leucine zipper is a fos zipper.

30. (Original) The fusion protein of claim 20, wherein said dimerizing polypeptide comprises a polypeptide having positively or negatively charged residues wherein said polypeptide binds to another peptide bearing opposite charges.

31. (Original) A composition comprising the fusion protein of any one of claims 20 to 30 and a pharmaceutically acceptable carrier.

32. (Previously presented) A fusion protein comprising an amino acid sequence that is at least 90% identical to the amino acid sequence of SEQ ID NO: 5.

33. (Withdrawn) A nucleic acid sequence encoding a polypeptide fusion comprising a RAGE-LBE and an immunoglobulin element.

34. (Withdrawn) A nucleic acid sequence encoding a polypeptide at least 90% identical to the amino acid sequence set forth in Figure 3A.

35. (Withdrawn) The nucleic acid of claim 33, wherein said RAGE-LBE is fused to said immunoglobulin element through the C- or N-terminal amino or carboxy groups.

36. (Withdrawn) An expression vector comprising a nucleic acid of claim 33.

37. (Withdrawn) The expression vector of claim 36, which replicates in at least one of a prokaryotic cell and a eukaryotic cell.

38. (Withdrawn) A host cell transfected with the expression vector of claim 37.

39. (Withdrawn) A method of producing a RAGE-LBE-Immunoglobulin fusion protein comprising culturing the cell of claim 38 in a cell culture medium suitable for expression of the fusion protein.

40. (Withdrawn) The method of claim 39, further comprising a purification procedure to increase the purity of said fusion protein.

41. (Withdrawn) An isolated antibody, or fragment thereof, specifically immunoreactive with an epitope of the amino acid sequence as set forth in Figure 3A.

42. (Currently amended) A protein complex comprising one or more fusion proteins, wherein said fusion proteins are selected from ~~the group consisting of~~:
a) a fusion protein of claim 1; and
b) a fusion protein of claim 20.

43. (Currently amended) A pharmaceutical composition comprising a RAGE-LBE and a TNF-α inhibitor, wherein the RAGE-LBE comprises ~~an amino acid sequence~~ at least 118 amino acids and is at least ~~70%~~ 95% identical to ~~an extracellular portion~~ amino acid residues 1 through 118 of SEQ ID NO: 7.

44. (Previously presented) A pharmaceutical composition comprising a fusion protein of claim 1 and a TNF-α inhibitor.

45. (Currently amended) A method of identifying a compound which inhibits interaction of a RAGE-BP polypeptide selected from ~~the group consisting of~~ S100 and amphoterin, with a

receptor polypeptide selected from ~~the group consisting of~~ RAGE, RAGE-LBE, and RAGE-LBE-Immunoglobulin fusion, comprising:

a) forming a reaction mixture including: (i) a RAGE-BP polypeptide of S100 or amphoterin; (ii) a receptor polypeptide of RAGE, RAGE-LBE or RAGE-LBE-Immunoglobulin fusion; and (iii) a test compound, under conditions where, in the absence of the test compound, the RAGE-BP polypeptide and the receptor polypeptide interact; and

b) detecting interaction of the RAGE-BP polypeptide with the receptor polypeptide, wherein a decrease in the interaction of the RAGE-BP polypeptide and the receptor polypeptide in the presence of the test compound, relative to the level of interaction in the absence of the test compound, indicates an inhibitory activity for the test compound.

46. (Withdrawn) The method of claim 45, wherein the RAGE-BP is S100.

47. (Withdrawn) The method of claim 45, wherein the RAGE-BP is amphoterin.

48. (Currently amended) A method of identifying a compound which inhibits the RAGE signaling activity induced by a RAGE-BP polypeptide selected from ~~the group consisting of~~ S100 and amphoterin, comprising:

a) contacting a cell with a RAGE-BP polypeptide of S100 or amphoterin;

b) contacting the cell with a test compound, under conditions where, in the absence of the test compound, the signaling activity of the RAGE occurs normally; and

c) detecting the signaling activity of the RAGE induced by the RAGE-BP,

wherein a decrease in the signaling activity of the RAGE induced by the RAGE-BP in the presence of the test compound, relative to the level of signaling activity in the absence of the test compound, indicates an inhibitory activity for the test compound.

49. (Withdrawn) The method of claim 48, wherein the RAGE-BP is S100.

50. (Withdrawn) The method of claim 48, wherein the RAGE-BP is amphoterin.

51. (Withdrawn) The method of claim 48, wherein the signaling activity is activating NF-kB transcriptional activity.

52. (Withdrawn) The method of claim 48, wherein the signaling activity is activating mitogen-activated protein kinase (MAPK) activity.

53. (Withdrawn) A method of inhibiting the interaction between Receptor for Advanced Glycation End Product (RAGE) and a RAGE binding partner (RAGE-BP) comprising administering a fusion protein comprising RAGE-LBE and an immunoglobulin.

54. (Withdrawn) A method of inhibiting the interaction between Receptor for Advanced Glycation End Product (RAGE) and a RAGE binding partner (RAGE-BP) comprising administering the antibody of claim 41.

55. (Withdrawn) A method of inhibiting the interaction between Receptor for Advanced Glycation End Product (RAGE) and a RAGE binding partner (RAGE-BP) comprising administering a compound identified by the method of claim 45 or 48.

56. (Withdrawn) A method of decreasing the activity of endogenous RAGE comprising administering a fusion protein comprising RAGE-LBE and an immunoglobulin.

57. (Withdrawn) A method of decreasing the activity of endogenous RAGE comprising administering the antibody of claim 41.

58. (Withdrawn) A method of decreasing the activity of endogenous RAGE comprising administering a compound identified by the method of claim 45 or 48.

59-71. (Canceled)

72-82. (Canceled)

83-84. (Canceled)

85. (Currently amended) ~~The fusion protein of claim 1~~ A fusion protein comprising a Receptor for Advanced Glycation End Product Ligand Binding Element (RAGE-LBE) and an immunoglobulin element, wherein said RAGE-LBE comprises an amino acid sequence ~~of~~ at least 95% identical to SEQ ID NO: 2.

86. (Previously presented) The fusion protein of claim 1, wherein the fusion protein has an amino acid sequence of SEQ ID NO: 5.

87. (Currently amended) ~~The fusion protein of claim 20~~ A fusion protein comprising a RAGE-LBE and a second domain selected from ~~the group consisting of~~ a dimerizing polypeptide, a purification polypeptide, a stabilizing polypeptide, and a targeting polypeptide, wherein said RAGE-LBE comprises an amino acid sequence ~~of~~ at least 95% identical to SEQ ID NO: 2.

88. (Previously presented) The fusion protein of claim 20, wherein said RAGE-LBE comprises amino acid residues 1 through 344 of the amino acid sequence set forth in SEQ ID NO: 7.

89. (Previously presented) The fusion protein of claim 20, wherein said RAGE-LBE comprises amino acid residues 1 through 330 of the amino acid sequence set forth in SEQ ID NO: 7.

90. (Previously presented) The fusion protein of claim 20, wherein said RAGE-LBE comprises amino acid residues 1 through 321 of the amino acid sequence set forth in SEQ ID NO: 7.

91. (Previously presented) The fusion protein of claim 20, wherein said RAGE-LBE comprises amino acid residues 1 through 230 of the amino acid sequence set forth in SEQ ID NO: 7.

92. (Previously presented) The fusion protein of claim 20, wherein said RAGE-LBE comprises amino acid residues 1 through 118 of the amino acid sequence set forth in SEQ ID NO: 7.